

CLAIMS:

1. A wood cutting apparatus, comprising:

a first hub axially disposed for rotation about an axis, said first hub

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having a first pocket for receiving a first knife against a
supporting wall of said first pocket, said first hub having a
first threaded hole therein; and

a first threaded member having a frustoconical first ramping

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portion for producing a first wedging force against the first
knife when said first threaded member is threaded into said
first threaded hole.

2. The wood cutting apparatus of claim 1, wherein said first knife has dual,
opposed, linear cutting edges.

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3. The apparatus of claim 1, further comprising a first gib, said first pocket
for receiving said first gib against the first knife, wherein said first gib transmits said first
wedging force to the first knife.

4. The apparatus of claim 1, further comprising a second hub coaxially

disposed with respect to said first hub, said second hub having a second pocket for receiving a second knife against a supporting wall of said second pocket, said second hub having a second threaded hole therein, and a second threaded member having a second frustoconical ramping portion for producing a second wedging force against the second
5 knife when said second threaded member is threaded into said second threaded hole.

5. The apparatus of claim 4, wherein said first and second hubs are adapted to be bolted together.

6. The apparatus of claim 5, wherein said first knife has dual, opposed, linear cutting edges.

10 7. The apparatus of claim 6, wherein said second knife has at least one curvilinear cutting edge.

8. The apparatus of claim 7, wherein said second knife includes substantially linear outer perimeter portions that provide respective alignment reliefs with respect to lines tangent to the ends of said at least one cutting edge.

15 9. The apparatus of claim 8, wherein said alignment reliefs define alignment angles of relief between said lines and said outer perimeter portions that are at least about 20 degrees.

10. The apparatus of claim 9, wherein said second knife has at least two curvilinear cutting edges.

11. The apparatus of claim 10, wherein said second knife has four curvilinear cutting edges.

5 12. The apparatus of claim 11, wherein said four curvilinear cutting edges are concave, semi-circular, and spaced apart from one another with 90 degree rotational symmetry.

13. The apparatus of claim 4, wherein said first and second threaded members are substantially identical.

10 14. The apparatus of claim 4, further comprising a second gib, said second pocket for receiving said second gib against the second knife, wherein said second gib transmits said second wedging force to the second knife.

15. The apparatus of claim 14, wherein said first and second hubs are adapted to be bolted together.

15 16. The apparatus of claim 4, further comprising a third hub coaxially disposed with respect to said first and second hubs, said third hub having a third pocket

for receiving a third knife against a supporting wall of said third pocket, said third hub having a third threaded hole therein, and a third threaded member having a third frustoconical ramping portion for producing a wedging force against the third knife when said third threaded member is threaded into said third threaded hole.

5 17. The apparatus of claim 16, wherein said first, second and third hubs are adapted to be bolted together.

18. The apparatus of claim 19, wherein said first, second and third threaded members are substantially identical.

10 19. The apparatus of claim 16, further comprising a third gib, said third pocket for receiving said third gib against the third knife, wherein said third gib transmits said third wedging force to the third knife.

20. The apparatus of claim 19, wherein said first, second and third hubs are adapted to be bolted together.

15 21. The apparatus of claim 16, wherein said first knife has two, opposed, linear cutting edges and wherein said second and third knives each have at least one curvilinear cutting edge.

22. The apparatus of claim 21, wherein said second and third knives are substantially identical.

23. The apparatus of claim 22, wherein said at least one curvilinear cutting edge is semi-circular, for producing a radius cut.

5 24. The apparatus of claim 22, wherein said second and third knives each include two substantially linear outer perimeter portions that provide respective alignment reliefs with respect to lines tangent to the ends of the respective said at least one cutting edge.

25. The apparatus of claim 24, wherein said alignment reliefs define alignment
10 angles of relief between said lines and said outer perimeter portions that are at least about 20 degrees.

26. The apparatus of claim 25, wherein said second and third knives each have at least two curvilinear cutting edges.

27. The apparatus of claim 26, wherein said second and third knives each have
15 four curvilinear cutting edges.

28. The apparatus of claim 27, wherein said cutting edges are concave and

semi-circular, for producing radius cuts.

29. The apparatus of claim 28, wherein said cutting edges are spaced apart from one another with 90 degree rotational symmetry.

30. A wood-cutting knife comprising at least two spaced apart, concavely
5 curvilinear cutting edges, wherein respective lines bisecting said cutting edges extending from respective points of intersection therewith to respective centers of curvature thereof diverge from one another.

31. The knife of claim 30, wherein said cutting edges are semi-circular.

32. The knife of claim 30 having a planar front side, a spaced apart, planar
10 back side and a beveled face connecting said front and back sides at respective outer peripheral contours thereof, wherein the outer peripheral contour of said front side includes one of said cutting edges, wherein, in a cross-section of the knife taken in a plane perpendicular to the plane of said front side and to the peripheral outer contour thereof, said beveled face defines an attack angle of relief with respect to said plane,
15 wherein said attack angle of relief is in the range of 25 - 40 degrees.

33. The knife of claim 30 having planar front side, a spaced apart, planar back side and a beveled face connecting said front and back sides at respective outer peripheral

contours thereof, wherein the outer peripheral contour of said front side includes one of said cutting edges, wherein, in a cross-section of the knife taken in any plane perpendicular to the plane of said front side and to the peripheral outer contour thereof, said beveled face defines a substantially fixed attack angle of relief with respect to said plane.

34. The knife of claim 33 including, associated with at least one of said cutting edges, substantially linear outer perimeter portions that provide respective alignment reliefs with respect to lines tangent to the ends of said at least one of said cutting edges.

35. The knife of claim 34, wherein said reliefs define alignment angles of relief between said lines and said outer perimeter portions that are at least about 20 degrees.

36. The knife of claim 35 having four spaced apart, concave semi-circular cutting edges.

37. The knife of claim 36, wherein said cutting edges are spaced apart from one another with 90 degree rotational symmetry.

38. The knife of claim 30 including, associated with at least one of said cutting edges, substantially linear outer perimeter portions that provide respective alignment

reliefs with respect to lines tangent to the ends of said at least one of said cutting edges.

39. The knife of claim 38, wherein said reliefs define alignment angles of relief between said lines and said outer perimeter portions that are at least about 20 degrees.

5 40. The knife of claim 39, having four spaced apart, concave semi-circular cutting edges.

41. The knife of claim 40, wherein said cutting edges are spaced apart from one another with 90 degree rotational symmetry.

42. A wood-cutting knife comprising "n" curvilinear cutting edges, where "n"
10 is greater than 2, spaced apart from one another with $360/n$ degree rotational symmetry.

43. The knife of claim 42, wherein said cutting edges are concave and semi-circular.

44. The knife of claim 43, where "n" = 4.

45. The knife of claim 44 including, associated with at least one of said cutting

edges, substantially linear outer perimeter portions that provide respective alignment reliefs with respect to lines tangent to the ends of said at least one of said cutting edges.

46. The knife of claim 45, wherein said reliefs define alignment angles of relief between said lines and said outer perimeter portions that are at least about 20
5 degrees.

47. The knife of claim 42 including, associated with at least one of said cutting edges, substantially linear outer perimeter portions that provide respective alignment reliefs with respect to lines tangent to the ends of said at least one of said cutting edges.

10 48. The knife of claim 47, wherein said reliefs define alignment angles of relief between said lines and said outer perimeter portions that are at least about 20 degrees.

49. A method for cutting wood, comprising the steps of:

providing a first end portion adapted for rotation about an axis and
15 for carrying a plurality of circumferentially disposed first
knives having one or more respective straight cutting edges;

providing a second end portion adapted for rotation about said axis

and for carrying a plurality of circumferentially disposed
second knives having one or more respective curvilinear
cutting edges;

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coaxially adjacently disposing said first and second end portions on
a rotatable shaft; and

bolting said first and second end portions together.

50. The method of claim 49, further comprising disassembling said first and
second end portions by reversing said step of bolting.